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IN REPLY

REFER TO: J-10892

19 April 1952

539

Dr. Walter D. Claus
Division, Biology and Medicine
U. S. Atomic Energy Commission
Washington 25, D. C.

This material contains information affecting the national defense of the United States within the meaning of the espionage laws of the United States and its territories and possessions, and the transmission or revelation of its contents in any manner to an unauthorized person is prohibited by law.

Dear Dr. Claus:

So far as I am aware a final report on the Jangle fall-out studies has not yet been written. I have, however, examined the preliminary report prepared by Shulte and have compared his findings with the predictions of the non-turbulent model for the case of the first Jangle shot. The data are unfortunately very skimpy. Readings of radiation levels were made at several points in the general area of fall-out, but the survey was a long ways from being complete enough to permit a plot of isodose contours. It is consequently difficult to know whether the readings represent levels along the main axis of the fall-out or levels off to the side.

Predictions from the model are conservative except for one experimental point at approximately 160 miles from zero.

Distance (Miles)	Measured Dose (Roentgens)	Predicted Dose (Roentgens)
18	27.	51.
40	2.5	18.
115	0.1	1.4
160	0.28	0.31
235	0.02	0.08

The measured dose was computed from observed radiation rates and the fission fragment decay law ($t^{-1.2}$). The predicted dose was computed from the non-turbulent model with the variable parameters (cloud height, yield, wind velocity, and mean particle size for the shot area soil) pegged to measured values for this shot. The agreement is hardly striking -- just barely order of magnitude. This result is, however, about what could reasonably be expected from the model under the best circumstances. The circumstances for this shot were fairly good -- strong winds, very little shear -- but not ideal. Terrain features strongly affect these low clouds.

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Dr. Walter Claus

-2-

19 April 1952

So far as future work is concerned I should like to emphasize a few points which I think need more attention than they have received heretofore. Certainly every effort should be made to obtain a complete map of the fall-out. Unfortunately such a map is not only very difficult to make in this inaccessible country but cannot be made by survey parties whose primary concern is public safety. It is also important that we continue to investigate the combined problems of particle-size and specific activity. To my knowledge results so far have been few and ambiguous.

Dr. Bergen Suydam at Los Alamos has recently begun an independent study of fall-out in connection with the use of the Eniwetok Proving Ground. He may be able to offer some further suggestions to assist you in planning your work.

Very truly yours,

Gaelen L. Felt
GAELLEN L. FELT
J-Division

GLF:lh

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